2016-12

Economic Growth, Foreign Direct Investment, and Privatisation in Egypt and China: Preliminary Results

Naguib, Rania

http://hdl.handle.net/10026.1/15920

Global Business and Economics Anthology

ECONOMIC GROWTH, FOREIGN DIRECT INVVESTMENT AND PRIVATISATION IN EGYPT AND CHINA: PRELIMINARY RESULTS[(a)]

Rania Ihab Naguib, Plymouth University, U.K.
Fangya Xu, Plymouth University, U.K.

ABSTRACT

Over the past four decades, Egypt and China have exhibited high growth rates, though at varying speed. Both countries have gone through structural adjustment, liberalisation and privatisation programmes in the past years. In this paper, we aim to examine the effects of privatisation, and FDI, along other economic determinants, on the economic growth of China and Egypt over the period 1970s – 2010s; using cointegration and error correction model (ECM). The preliminary results indicate that privatisation and FDI seem to have significant effects on economic growth over the short run in China, while they affect economic growth in Egypt over the long-run.

I. INTRODUCTION

Privatisation is a process that can be defined in two ways. The narrow definition focuses on the sale of State-Owned Enterprises (SOEs), while the wider definition is the reduction of the size of the public sector in the economic activities and allowing the growth of the private sector, whether this is done via selling SOEs, or allowing private (domestic and foreign) investors to initiate greenfield investments.

In the 1990s, many developing countries followed and engaged with privatisation programmes. While the motives of engaging in privatisation may have differed from one country to the other, the ultimate objective of engaging in privatisation programmes was to re-structure the economy and achieve higher growth rates.

This paper focuses on the effects of privatisation and FDI, among other economic determinants, on economic growth in two countries; Egypt and China. Both countries are classified as middle-income developing countries. They both launched their major privatisation programmes in 1991; though there were some individual and minor privatisation initiatives before that.

The Egyptian government efforts of privatising its economy (in the broad sense of privatisation), for example, started in the mid-1970s when Egypt adopted an 'open door' policy. Though the legislation of the 'open door' policy did not attempt to reduce the size of the public sector, investment laws that were passed to encourage private investment, such as Law 43 of 1974, allowed public enterprises to enter in joint ventures (JVs) with private investors, and the created JVs are considered as part of the private sector. Hence, the size of the private sector increased, without reducing the size of the public sector or selling SOEs. However, these JVs were still restricted by some public-sector control practices mainly in terms of employment and pricing strategies (Naguib, 2011). In mid-1980s, moderate attempts to privatise some of the public-sector assets, on governorates' level, were undertaken, as the Egyptian government allowed Governorates to sell some of their productive enterprises, also known as 'Governorates-owned projects' (GOPs). Most GOPs were small- to medium-size projects, most of which were valued at less than L.E. 50,000, while some were valued at L.E. 100,000.[1] As a developing country, Egypt has suffered from similar structural and economic problems to those faced by most developing countries[2]. By the second half of the 1980s, and owing to the crash in oil prices, Egypt suffered from severe economic disequilibria. For example, Inflation rates soared to 22.6% in 1986, as compared with 2.1% in 1972[3], and unemployment rates increased from 7.5% in 1972 to above 12% in 1982.[4]

Similarly, in China, since 1978, the government adopted a basket of reform policies including trade liberalisation and privatisation to reduce government planning and direct control and increase the role of market mechanisms to produce efficient economic growth in China. Earlier privatisation initiatives in China started from the rural areas transforming collectivism to "household responsibility system" for farming in

[(a)] We are grateful to the anonymous reviewers and B&ESI participants in the 2016 annual conference for their constructive comments and suggestions. Any errors remain ours.

late 1970s and early 1980s followed by the rise in town and village enterprises (TVEs) in late 1980s and early 1990s. In the meantime, reforms to state owned enterprises (SOEs) gradually rolled out as it was believed that delaying the privatisation process for inefficient SOEs[5] is a second-best arrangement before the setup of necessary regulatory and legal framework (Bai et al. 2009). Different SOE reforms had been experimented but undesirable consequences had risen, such as the concealing of SOEs achieved profits and accumulation of bad loans; all of which have increased the burden on the government budget.[6]

Meanwhile, before the 1990s, private investments (particularly Foreign Direct Investment; FDI as a percentage of GDP) were limited due to the nature of closed, centralised economies of both Egypt and China during the 1960s-1970s. In Egypt, economic growth was negative in 1986 and 1987, when GDPpc growth rates were -0.13% and -0.28%; respectively. In China, economic growth slowed down and reached a low of 2.63% in 1989. By then, a need for re-structuring the economy, reducing the size of the public sector, and applying policies that encourage foreign investment has risen, and many developing countries; including Egypt and China, started applying major privatisation programmes. It was noticed, then, that since 1990s onwards, private investment and economic growth in both countries started to recover, though still at varying rates.

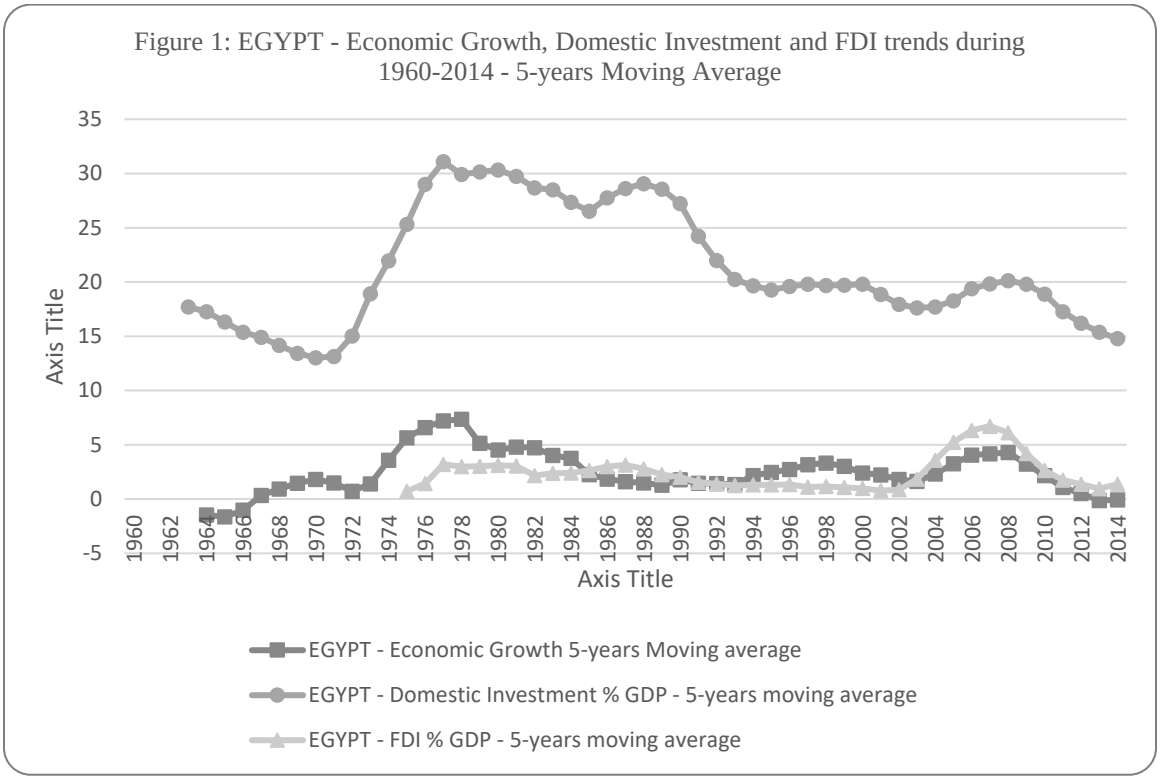
Using Dobronogov and Iqbal (2005)'s five-year moving average method to create and analyse the trends in economic growth, domestic investment ratio, and FDI ratio in both countries, one can detect that the during the privatisation era of 1990s and 2000s, these three economic variables exhibited positive correlations in both countries, as demonstrated in figures 1 and 2 above. Taking Egypt, as an example, one can distinguish between four phases of economic development, as illustrated in figure 1:

1- The domination of the state-owned enterprises (SOEs), 1960-73.
2- Open Economy, 1974-85.
3- Economic Crisis, 1986-91.
4- Economic reform and Structural Adjustment, 1990s and 2000s.

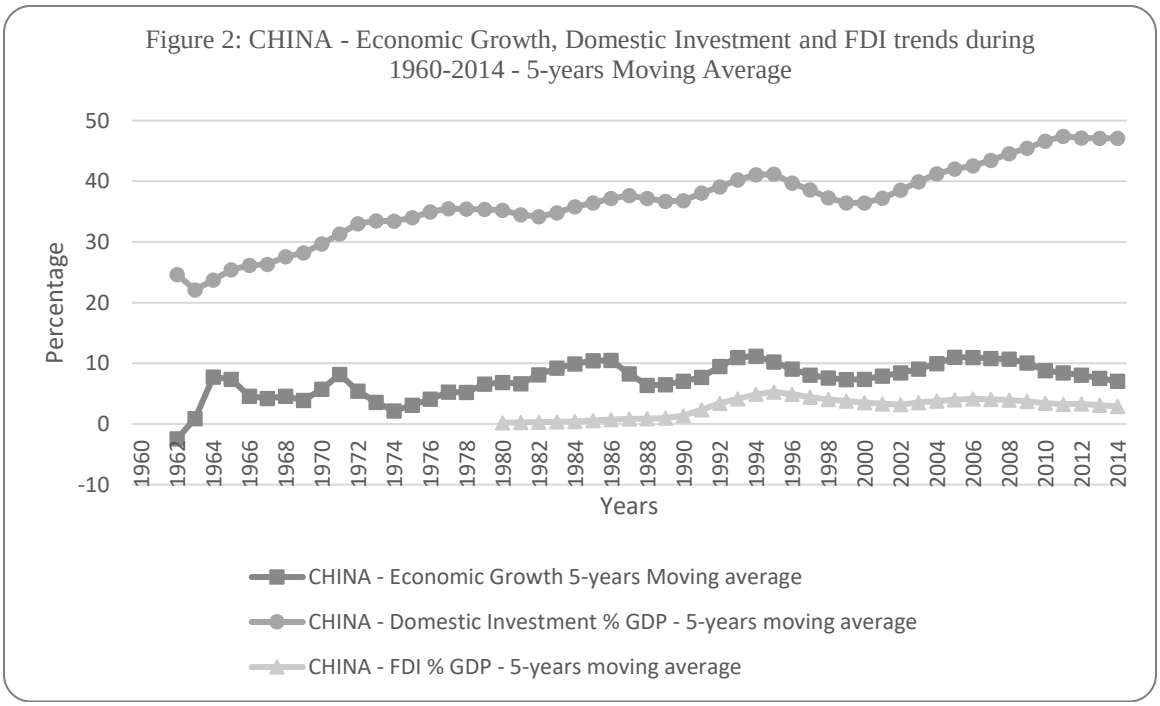
Privatisation in Egypt and China was carried out using various methods; including divestiture, direct sale to an anchor or group of investors, creating joint-ventures, leasing, concessions, or privatising via shares issues and public offerings. In both countries, however, the favourable method of privatisation was via the stock markets and sharing issuing. Table A1 in the appendix reflects Egypt's dependence on the use of stock markets (including various forms of public offerings;) to privatise its SOEs, where the highest numbers of transactions and values were recorded. It is worth mentioning, however, that the International Finance Corporation (IFC) records transactions that yields proceeds more than $500,000. It is, therefore, not reflecting all the privatisation transactions carried out in each country. Local agencies may have some extra data reported. For example, in a report by PCSU (2001), 180 privatisation transactions in Egypt were recorded for the period of 1993-2001 (Table A2 in the appendix), compared to the 174 transactions reported by the IFC for the 1993-2008 period. In both sources, however, the conclusion that Egypt was more dependent on the stock market in its privatisation programme still holds. The same is observed when analysing the IFC Privatisation database over the period of 1990 – 2008 for the case of China, and comparing it to other reports on privatisation in China. While Table A3 in the appendix indicates that more than 50% of the recorded privatisation transactions were carried out via some sort of shares' offering and via stock markets, Gan (2009) reports that between 1995 and 2005 approximately 100,000 firms with 11.4 trillion RMB worth of assets were privatised, compromising two-thirds of China's SOEs and state assets. However, detailed statistics on the transactions are not easy to obtain as Gan (2009, p.581) commented that "except on *[Share Issue Privatization]* SIP, there are no official statistics on the number of firms or the value of the assets that have been sold".

There are several empirical studies on the effects of privatisation that investigates the effects on a micro-level (i.e. the effects on firms' performances) such as Beirne et al. (2013); Estrin et al. (2009); Driffield and Du (2007); Dong et al. (2006); and Sun and Tong (2003). Other studies focus on the effects of privatisation on employment (e.g. Bhaskar and Khan, 1995; Cook and Kirkpatric, 1998; and Kikeri, 1998). Very few investigated the effects of privatisation on economic growth such as Naguib (2012); McKenzie (2008); Filipovic (2005) and Plane (1997). This paper presents the preliminary empirical findings of the effects of privatisation and FDI, among other economic determinants, on economic growth during 1970- 2014 in Egypt and China. The paper uses the IFC privatisation database (1990-2008) as the source for privatisation proceeds in US$ millions. The paper develops as follows: Section 2 presents a brief literature review of economic

growth theories and models. Section 3 presents the methodology and theoretical specification of the model. Section 4 presents the preliminary empirical results and Section 5 presents some concluding remarks.



Source: Constructed by the authors based on World Bank (2016), World Development Indicators.



Source: Constructed by the authors based on World Bank (2016), World Development Indicators.

II. ECONOMIC GROWTH THEORIES LITERATURE REVIEW

The literature presents two main growth theories on which growth empirics are based: the neo-classical theory and the endogenous growth theory. Pioneered by Solow (1956) and Swan (1956), the neo-classical growth theory stipulates that long-run economic growth is solely determined by exogenous changes in technology, savings and labour. Changes in capital stock will affect short-run economic growth. In this sense, the neo-classical approach regards FDI as an addition to the physical capital stock; hence it will affect economic growth in the short run only.

However, the neo-classical growth theory does point to the possibility of endogenous effects among the three variables of technical progress, capital and labour as "the rate of technical progress may not be independent of the rate of accumulation, or … accumulation may give rise to external economies … [and] the rate of growth of labour may not be independent of the rate of accumulation" [Swan, 1956, pp. 338-9]. Hence, one may argue that in an augmented neo-classical model, the accumulation of FDI may give rise to external economies in the form of technological spillovers that are by-products of FDI, and hence FDI can affect long-run economic growth. In addition, FDI helps in closing the gap between domestic investment and domestic savings. In other words, the effect of an increase in FDI is similar to that of an increase in savings, as FDI is simply foreign savings transferred to the host economy.

The effects of privatisation on economic growth can also be explained within the neo-classical context. While the Keynesian model calls for government intervention, the neo-classical model calls for the reduction of government intervention; stipulating that equilibrium and economic growth can be achieved via free-market practices. In this sense, privatisation, which broadly means the shrinkage of the government size or intervention in economic activities, will satisfy the neo-classical condition of equilibrium and economic growth.

The endogenous growth theory, on the other hand, stipulates that long-run economic growth can be achieved by endogenous factors within the system. By differentiating between physical and human capital, Romer (1986) and Lucas (1988) argued that the accumulation of human capital in the form of knowledge, know-how and innovation, will endogenously induce technological progress and hence achieve sustained economic growth.

In this sense, supposedly (exogenous) factors such as FDI and privatisation will have endogenous effects on other factors of production (e.g. human capital and technological level), which will lead to long-run endogenous economic growth. FDI is usually accompanied by transfer of technology, know how, and training of labour; all of which contribute to the accumulation of human capital and induce technological progress in the host country that will lead to long-run economic growth.

It is argued that countries with low levels of physical and human capital will follow the neo-classical model in the sense that, in the beginning, growth will be affected by physical capital only, and hence FDI will be regarded as an accumulation of physical capital and thus affect short-run economic growth. However, to sustain this growth, physical capital needs to be accumulated and, by investing in education, the augmentation of human capital would follow[7]. The transition from neo-classical growth to sustained growth will eventually depend on the saving behaviour prevailing in the economy. This implies that the effects of FDI in countries with low levels of human capital will follow the neo-classical growth model, whereas in countries with high levels of human capital will follow the endogenous growth model.

Similarly, the effects of privatisation on long-run economic growth can be explained via its effects on the level of innovation in the economy. The private sector is believed to be more innovative than the public sector because the former is driven by profit-maximisation objectives and therefore is in constant search of new economically profitable production techniques (Gylfason et al., 1998). In that sense, privatisation, which in effect means the reduction of the size of the public sector and the expansion of the private sector, will be accompanied by increase in the level of innovation and hence will induce long-run economic growth. In addition, privatisation can affect other productive factors within the system such as domestic and foreign investment. By attracting more foreign investment[8], privatisation is indirectly inducing the positive spillovers of investment (i.e. technology transfer, labour training and innovation) that will have endogenous effects on long-run economic growth.

III. METHODOLOGY AND MODEL

Empirical literature includes two methodologies of modelling economic growth[9]. The first is known as "growth accounting", where variables such as FDI and privatisation are considered as additional inputs in an augmented neo-classical production function:

$$Y = Af(K, L, F, Priv) \quad (1)$$

where Y is output, A captures technological progress, K is capital, L is labour, F is FDI, and $Priv$ is privatisation. In other words, the growth accounting methodology reflects the supply side of the economy.

The second methodology employs an intertemporal utility-maximisation framework of private consumption, which models the demand side of the economy[10].

The aim of this research is to investigate the effects of FDI and privatisation on economic growth, as measured by growth in output per capita (i.e. GDP per capita). The growth accounting methodology is conventionally used by empirical studies that follow the neoclassical growth model (De Mello, 1997, p. 10), as well as other studies that adopt the endogenous growth theory framework (e.g. Li and Liu, 2005). Therefore, in this study, we follow the same methodology and use an augmented neo-classical production function as the basis for our growth models.

A standard neo-classical growth model uses a production function of the form:

$$Y_t = A\,f(K_t, L_t) \quad (2)$$

where Y is output measured by GDP, A is a constant capturing the state of technology, K is capital and L is labour.

The endogenous growth theory framework; using the growth accounting approach, extends the above function by adding any additional inputs that may affect output. Mankiw et al. (1992) augmented the neo-classical growth model by differentiating between physical capital (K) and human capital (HK):

$$Y_t = A\,f(K_t, L_t, HK_t) \quad (3)$$

Similarly, physical capital can be differentiated into physical domestic capital (K) and physical foreign capital (K^f or FDI). Hence, the production function becomes:

$$Y_t = A\,f(K_t, L_t, HK_t, FDI_t) \quad (4)$$

Data on the active employed labour force are not readily available (Ramirez, 2006). Indeed, the world bank reports data for total labour force in Egypt and China only since 1990, which does not offer a time series long enough for reliable estimation. So, many empirical studies (e.g. Li and Liu, 2005; Vamvakidis, 2002; Pattillo et al., 2002) use population as a proxy for labour. Hence, the above production function becomes:

$$Y_t = A\,f(K_t, Pop_t, FDI_t, HK_t) \quad (5)$$

Empirical research indicates that economic growth is also determined by other factors such as the level of openness (Edwards, 1998; Vamvakidis, 2002) or degree of export orientation (Balasubramanyam et al., 1996 and 1999), privatisation (Plane, 1997), and external (foreign) debt (Lin and Sosin, 2001; and Pattillo et al., 2002).

The production function therefore becomes:

$$Y_t = AF(K_t, Pop_t, FDI_t, HK_t, X_t) \quad (6)$$

where: Y_t represents real GDP and X_t represents all other variables that may have an effect on output such as Openness (Total Trade as a % of GDP), privatisation (Priv) and external debt (Xdebt).

Economic growth is measured by growth in real GDP per capita. Gross capital formation (known as Gross Domestic Investment) is used to capture the effects of K, and it is measured in per capita *(kpc)*. FDI is

measured by Foreign Direct Investment Net Inflows per capita *(FDIpc)*. The size of the privatisation programme is captured by privatisation proceeds per capita *(Privpc)*. Human capital is measured by secondary school enrolment ratio *(HK)*. Openness is measured as total trade of goods and services as a percentage of GDP *(Trat)*. Finally, the effects of a country's indebtness on its economic growth is captured by the ratio of external debt stock to GDP *(xdebtrat)*.

The above function is estimated as a log-linear function, which results in:

$$\Delta gdppc_t = \alpha + \beta\, \Delta kpc_t + \gamma\, \Delta fdipc_t + \lambda\, \Delta privpc_t + \delta\, \Delta hk_t + \eta\, \Delta trat_t + \mu\, \Delta xdebtrat_t + \varepsilon_t \qquad (7)$$

where lower-case letters denote the natural logs of the relevant variables.

Growth rates are calculated by first difference (i.e. $\Delta y_t = y_t - y_{t-1}$)[11]. The parameters α,β,γ, ..etc represent the elasticity of growth in GDP per capita with respect to each explanatory variable. The model is estimated over period 1970– 2014. Data for privatisation proceeds were collected from the IFC privatisation database and calculated in constant 2005 US$. Privatisation in China started in 1990, while in Egypt the programme was announced in 1991, but the first sale took place in 1993; therefore, the missing observations were given zero values. Data for all other variables were collected from the online WDI (2016) and were calculated in constant 2005 US$. Constant values were calculated by dividing current values over the GDP deflator. The GDP deflator for each country was calculated by dividing the GDP (in current US$) over real GDP (in constant 2005 US$).

IV. EMPIRICAL RESULTS

A. Unit Root tests

Time series for macroeconomic variables such as GDP usually exhibit time trends (i.e. their mean and variance depend on time and the covariance is not constant).[12] In such cases, the series is non-stationary (e.g. I(1)). In other words, any sudden shock will not fade over time. Including a non-stationary variable in the model will result in spurious regression.[13] Hence, before estimating the model, we need to test for a unit root (i.e. test whether a series is non-stationary [I(1)], or stationary [I(0)]). Once non-stationary series are identified, they will be de-trended to avoid spurious regression.

To test for a unit root, we apply the Dicky-Fuller (DF) and augmented Dicky-Fuller (ADF) tests to each variable. The DF test estimates the following model:

$$y_t = \gamma + \delta t + \alpha y_{t-1} + \varepsilon_t \qquad (8)$$

while the ADF test estimates the following model:

$$y_t = \gamma + \delta t + \alpha y_{t-1} + \sum_{j=1}^{k} \lambda_j \Delta y_{t-j} + e_t \qquad (9)$$

The null hypothesis of the DF and ADF tests is that there is a unit root problem and hence y_t is non-stationary (e.g. I(1)), while the alternative hypothesis is that there is no unit root problem and hence y_t is stationary (i.e. I(0)). One of the limitations of the DF and ADF tests is their weak power especially in small samples. Furthermore, rejecting or accepting the null hypothesis will also depend on the number of lags used. Using too many lags will lead to over acceptance of the null hypothesis, while using too few lags may lead to over rejection. In addition, the inclusion of deterministic trends affects the results of the DF and ADF tests[14]. A sequence of steps is suggested by Perron (1988), as reported in Harris and Sollis (2003), whereby a general specification of DF test is applied that includes both intercept (γ) and time trend *(t)*. If the null hypothesis of a unit root is not rejected under the general specification of the test, "testing continues down to more restricted specifications"[15] (i.e. specification with intercept and no time trend, then specification with no intercept or time trend). Testing stops as soon as the null hypothesis of a unit root is rejected.[16] The DF and ADF tests with intercept and time trend (τ_δ), and with intercept and no time trend (τ_γ) for the above variables using maximum number of 9 lags[17] and using the Akaike Information (AI), Schwarz Bayesian (SB), the modified AI, and the modified SB criteria.

Tables (1a) and (1b) report the tests results using the SB criteria only, as the two criteria usually gave the same results in most cases. However, AI criterion works better with longer lags and hence it requires large samples (Harris and Sollis, 2003, pp. 51-52). The two criteria, however, gave similar results in most cases in our models.

In very few cases, the results of the ADF tests using different criteria resulted in contradicting results. Another limitation of the DF and ADF tests is that they are unreliable when there is a structural break in the time series. In such cases, a modified unit root test that takes into consideration structural breaks is required. Perron (1989) uses the following model to test for a unit root at the existence of structural break:

$$y_t = \tilde{\mu} + \tilde{\beta}t + \tilde{\gamma}DT_t^* + \tilde{y}_t; \quad \tilde{y}_t = \tilde{\alpha}\tilde{y}_{t-1} + \sum_{t=1}^{k} \tilde{c}_t \Delta\tilde{y}_{t-1} + \tilde{e}_t \qquad (10)$$

where the post-break dummy variable $DT_t^* = t\text{-}T_B$, T_B refers to the time of the break, $DT_t^* = 1$ if $t>T_B$ and 0 otherwise.

E-views 9 offers this modified version of the ADF test. This version of the test was applied on few variables for which the normal ADF test failed to give a definite conclusion. These variables are highlighted with the date of the detected break reported next to the test statistic.

Table 1a: Unit Root tests for Egypt's model

Variable[a]	***τ_δ (Intercept and Trend)***		***τ_γ (Intercept only)***		**I**
	***SB* (lags)**	***P-value***	***SB* (lags)**	***P-value***	
LGDP	*-3.648773 (5) – break in 1989*	*0.5981*	*-2.012592 (0) – break in 2005*	*0.9817*	*I(1)*
DLGDP	-3.778924** (0)	0.0275	-3.267396** (1)	0.0229	
LGDPpc	*-2.381606 (2)*	*0.3834*	*-1.752089 (0)*	*0.3988*	*I(1)*
DLGDPpc	-4.260807*** (3)	0.0087	-3.289585** (3)	0.0221	
LK	*-3.078151 (1)*	*0.1243*	*-2.778773* (0)*	*0.0695*	*I(1)*
DLK	-4.938455*** (0)	0.0013	-4.582222*** (0)	0.0006	
LFDI	*-3.029564 (0)*	*0.1361*	*-2.898399* (0)*	*0.0536*	*I(1)*
DLFDI	-4.376700*** (2)	0.0063	-4.051628*** (2)	0.0030	
HK[18]	*-1.62817 (0)*	*0.6562*	*-1.917345 (0)*	*0.3215*	*I(1)*
DHK	-6.517784*** (1)	0.0000	-6.086487*** (1)	0.0000	
LT	*-2.226689 (1)*	*0.4633*	*-0.963594 (1)*	*0.7577*	*I(1)*
DLT	-4.304697*** (0)	0.0073	-4.376995*** (0)	0.0011	
LPRIV	*-2.019868 (0)*	*0.5745*	*-2.075703 (0)*	*0.2551*	*I(1)*
DLPRIV	-5.880180*** (0)	0.0001	-5.909443*** (0)	0.0000	
LXdebt	*-1.611576 (0)*	*0.7723*	*-2.809227* (0)*	*0.0652*	*I(1)*
DLXdebt	-4.974627*** (0)	0.0012	-4.177968*** (0)	0.0020	
LXdebtRat	*-1.794076 (0)*	*0.6907*	*-0.137802 (0)*	*0.9386*	*I(1)*
DLXdebtRat	-5.348378*** (0)	0.0004	-4.568762*** (0)	0.0006	
LPop	*-1.387551 (4)*	*0.8495*	*-2.256644 (0)*	*0.1906*	*I(1)*
DLPop[19]	-3.850729 (8) – break in 2001	0.4679	-4.286495* (3) – break in 1986	0.0770	

Notes:

- τ_δ is the general specification of the test that includes both time trend and intercept. τ_γ is a restricted specification of the test that includes intercept but no time trend.
- The tests were done in E-views 9.
- (***) denotes rejecting the H0 at 1%, (**) denotes rejecting the H0 at 5%, while (*) denotes rejecting the H0 at 10%.
- L denotes natural log of the adjacent variable, while DL denotes the first difference.

a- In equation 7 the variables are in per capita form. The tests were performed on individual time series before they were transformed into per capita or GDP forms. A combined variable (e.g. LKpc) of two I(1) series (e.g. LK and LPop) will also be I(1). A combined variable in which any of the series is an I(1) will always be an I(1). The ADF test on LXdebtrat (i.e. Log of External debt as a percentage of GDP) indicated that it is I(1) in levels, while one of the ADF tests on LXdebt showed that it is I(0) at the 10% significance level. But as the ADF tests show that LGDP is I(1) in levels, the combined variable LXdebtrat was found to be I(1) in levels.

Table 1b: Unit Root tests for China's model

Variable[a]	τ_δ *(Intercept and Trend)*		τ_γ *(Intercept only)*		I
	***SB* (lags)**	***P-value***	***SB* (lags)**	***P-value***	
LGDP	*-4.617942** *(9)- break in 1989*[20]	*0.0969*	*-0.968802 (2)- break in 1991*	*> 0.99*	*I(1)*
DLGDP	-3.336767* (1)	0.0743	-3.352277** (1)	0.0186	
LGDPpc	*-3.883292 (1)- break in 2004*	*0.4469*	*-0.867656 (2)- break in 1991*	*> 0.99*	*I(1)*
DLGDPpc	-3.337565* (1)	0.0742	-3.227948** (1)	0.0252	
LK	*-3.754578 (1)- break in 2006*	*0.5293*	*-0.803676 (1)- break in 1982*	*> 0.99*	*I(1)*
DLK	-5.554244*** (0)	0.0002	-5.496824*** (0)	0.0000	
LFDI	*-1.462456 (0)*	*0.8274*	*-1.509873 (0)*	*0.5194*	*I(1)*
DLFDI	-6.550027*** (0)	0.0000	-6.499297*** (0)	0.0000	
LHK	*-1.326606 (0)*	*0.8680*	*-0.701146 (2)*	*0.8354*	*I(1)*
DLHK	-4.520681*** (0)	0.0041	-4.515535*** (0)	0.0007	
LT	*-0.927225 (0)*	*0.9435*	*-1.797589 (0)*	*0.3769*	*I(1)*
DLT	-5.255342*** (0)	0.0005	-4.936913*** (0)	0.0002	
LPRIV	*-2.344877 (0)*	*0.4021*	*-0.747377 (0)*	*0.8238*	*I(1)*
DLPRIV	-6.127068*** (0)	0.0000	-6.201646**** (0)	0.0000	
LXdebtRat	*-0.457792 (0)*	*0.9820*	*-1.657136 (0)*	*0.4455*	*I(1)*
DLXdebtRat	-4.303247*** (1)	0.0075	-4.737083*** (0)	0.0004	
LPop	*-2.102174 (9)*	*0.5267*	*-2.367845 (2)*[21]	*0.1567*	*I(1)*
DLPop	-4.845339* (3)- break in 1997	0.0522	-5.787500***(8)- break in 1989	< 0.01	

Notes:

- τ_δ is the general specification of the test that includes both time trend and intercept. τ_γ is a restricted specification of the test that includes intercept but no time trend.
- The tests were done in E-views 9.
- (***) denotes rejecting the H0 at 1%, (**) denotes rejecting the H0 at 5%, while (*) denotes rejecting the H0 at 10%.
- L denotes natural log of the adjacent variable, while DL denotes the first difference.

a- In equation 7 the variables are in per capita form. The tests were performed on individual time series before they were transformed into per capita or GDP forms. A combined variable (e.g. LKpc) of two I(1) series (e.g. LK and LPop) will also be I(1).

The results of the unit root tests reported in tables (1a) and (1b) indicate that all variables in the Egyptian and Chinese models are I(1) in levels. When the results of the τ_γ (i.e. intercept but no trend) test contradict those of the τ_δ (intercept and trend) test such as in the case of LK, LFDI and LXdebt in table (1a), the variable is plotted to see whether it follows a trend or not. If the variable appears to follow a trend, then the results of $\boldsymbol{\tau_\delta}$ will be accepted.[22]

B. COINTEGRATION AND LONG-RUN RELATIONSHIP

As the results of the unit root tests indicate that all variables are I(1) in levels, to ensure obtaining non-spurious regression results, it is necessary to determine whether the variables are cointegrated and whether there exists a long-run relationship among them. This can be done by applying Johansen's test for cointegration (Maddala, 2001). The cointegration tests are carried out using E-views. The programme can perform the test using different models depending on the assumptions regarding the data trend and test type. Tables (2a) and (2b) report the results of Johansen's tests for both the Egyptian and Chinese models; respectively.

The cointegration tests indicate that the null hypothesis of no cointegration can be rejected at the 5% significance level. Hence, estimating the long-run (LR) relationship between the variables using OLS method will result in non-spurious results. The LR relationship is estimated using the following equation, and the results are presented in table 3:

$$gdppc_t = \alpha + \beta\, kpc_t + \gamma\, fdipc_t + \lambda\, privpc_t + \delta\, hk_t + \eta\, trat_t + \mu\, xdebtrat_t + \varepsilon_t \qquad (11)$$

Table 2a: Johansen's cointegration test (EGYPT), 1970 – 2014
For series *LGDPpc, LKpc, LFDIpc, LPrivpc, HK, LTrat, and LXdebtrat*

Selected (0.05 level*) Number of Cointegrating Relations by Model					
Data Trend:	**None**	**None**	**Linear**	**Linear**	**Quadratic**
Test Type	**No Intercept No Trend**	**Intercept No Trend**	**Intercept No Trend**	**Intercept Trend**	**Intercept Trend**
Trace	4	4	3	3	3
Max-Eig	3	3	3	3	3

Table 2b: Johansen's cointegration test (CHINA), 1970 – 2014
For series *LGDPpc, LKpc, LFDIpc, LPrivpc, LHK, LTrat, and LXdebtrat*

Selected (0.05 level*) Number of Cointegrating Relations by Model					
Data Trend:	**None**	**None**	**Linear**	**Linear**	**Quadratic**
Test Type	**No Intercept No Trend**	**Intercept No Trend**	**Intercept No Trend**	**Intercept Trend**	**Intercept Trend**
Trace	2	3	2	3	2
Max-Eig	1	2	2	2	2

Notes:
* Critical values based on MacKinnon-Haug-Michellis (1999)

Table 3: The OLS estimations of the long-run relationship; dependent variable *gdppc*

Variable	Egypt	China
Constant	5.44367	1.32792
	(13.68)***	(5.388)***
kpc	0.260697	0.892722
	(3.958)***	(26.76)***
fdipc	0.0443508	-0.0141503
	(3.375)***	(-0.6283)
privpc	0.00612594	-0.00318988
	(2.575)**	(-1.045)
hk	0.0133028	0.0526797
	(6.778)***	(0.7354)
trat	-0.0746592	-0.00792549
	(-0.8784)	(-0.1838)
xdebtrat	-0.175663	0.0268374
	(-5.771)***	(0.9927)
No. of Observations	44	45
R^2	0.967262	0.997703
Adjusted R^2	0.961953	0.997340
Autocorrelation LM Test[b]	9.2116***	27.3861***
Collinearity Test	No Collinearity Problem	Collinearity problem[a]

Notes:
- Estimated using GRETL
- (*) denotes statistical significance at 10%
- (**) denotes statistical significance at 5%
- (***) denotes statistical significance at 1%
- *t-statistics are reported in brackets*.

a- The collinearity test indicates collinearity problem for trat, xdebtrat, fdipc, and kpc. The Chinese model has been re-estimated using various lags, however, both the collinearity and autocorrelation problems persisted. Hence, the above results, though unbiased, are inefficient, and therefore, should be interpreted with caution.

b- The null hypothesis for the Autocorrelation LM test is "no autocorrelation".

According to the table (3), the evidence suggests that, in Egypt, long-run economic growth responds positively to the levels of domestic investment, foreign direct investment, privatisation, and human capital. External debt on the other hand will negatively affect the level of GDP. All the estimated significant coefficients in the Egyptian model exhibit the expected signs. The results of the Chinese model, on the other hand, seem to suggest that long-run economic growth is affected by domestic investment only, as its estimated coefficient is statistically significant at 1% significance level.

One should, however, proceed with caution when interpreting these results. Both models seem to exhibit problems of autocorrelation, and the Chinese model, exhibits collinearity problem as well. These two problems will render the estimates inefficient, but not biased. Usually the autocorrelation problem can be solved when lagged explanatory variables are added. However, different versions of the Chinese model, for example, were applied with 1 and 2 lags, still the same problems persisted according to the autocorrelation and the collinearity tests. Despite these two problems, an ADF test was carried out for the residuals of the above models, and it found that the residuals are stationary, which means that we can proceed to estimate the error correction models.

C. ERROR CORRECTION MODEL

The residuals of the long run relationship reported in Table 3 (i.e. error correction term; EC) is an I(0) variable and it is used to construct an error correction model. The advantage of such models is that they capture the short- and long-run effects of the determinants of economic growth (Hendry, 2000; Maddala, 2001). The error correction model for equation 7 now becomes:

$$\Delta gdppc_t = \alpha + \beta\, \Delta kpc_{t-i} + \gamma\, \Delta fdipc_{t-i} + \lambda\, \Delta privpc_{t-i} + \delta\, \Delta hk_{t-i} + \eta\, \Delta trat_{t-i} + \mu\, \Delta xdebtrat_{t-i} + \theta\, gdppc_{t-1} + \varphi\, EC_{t-1} + \varepsilon_t \qquad (12)$$

where i = the number of lags. EC_{t-1} is the lagged residual of the cointegrated relationships reported in table 3. Parameters $\alpha, \beta, \gamma, \lambda, \delta, \eta, \mu$ and θ represent short-run elasticities for growth in GDP per capita with respect to changes in the explanatory variables. A lagged dependent variable (LDV) is added to capture the effects of past economic growth rates on current economic growth. It is expected that the sign of the estimated coefficient of the LDV will be positive. The coefficient of the error correction term (φ) is an adjustment parameter that reflects the speed of correcting the deviation of the current economic growth from its long-run relationship with the explanatory variables.

The 'general-to-specific' approach has been used when estimating equation (12), which has been proven to be successful in driving a unique representative model.[23] The general model of equation (12) is run with a maximum of 2 lags for each variable owing to the shortness of the time period covered[24]. Table 4 presents the results of the general and the best specific error correction models that are estimated over the period of 1970 – 2014 for Egypt and China; respectively. None of the estimated ECM models for Egypt and China show any problems of autocorrelation or multicollinearity[25].

The estimated models reported in columns 3 and 5 of table (4) represent the best models for Egypt and China using the 'general-to-specific' approach. F-tests do not allow for deleting any further variable from the above models. Deleting any further variable would result in misspecification, and hence, the estimated coefficients would be biased. The estimated coefficients represent the elasticities of changes in GDP per capita growth in response to change in the explanatory variables.

Table 4: Error correction Models, dependent variable Δ*gdppc*, 1970 – 2014

Variable	Egypt		China	
	General	**Specific**	**General**	**Specific**
Constant	**0.0137**	**0.0135**	**0.0302**	**0.0306**
	(2.512)**	(2.795)***	(2.404)**	(4.283)***
Δkpc_t	0.0396	**0.0458**	**0.3939**	**0.4076**
	(1.310)	(1.949)*	(6.123)***	(8.330)***
Δkpc_{t-1}	0.0370	---	**−0.1620**	**−0.1684**
	(1.184)		(−2.030)*	(−2.790)***
Δkpc_{t-2}	na	na	0.0202	---
			(0.3116)	
$\Delta fdipc_t$	0.0049	0.0041	**0.0481**	**0.0377**
	(1.159)	(1.079)	(2.320)**	(3.203)***
$\Delta fdipc_{t-1}$	-0.0024	---	−0.0061	---
	(-0.6533)		(−0.4525)	
$\Delta fdipc_{t-2}$	na	na	0.0083	---
			(0.5147)	
$\Delta privpc_t$	-0.0035	-0.0003	0.0006	---
	(-0.4155)	(-0.3393)	(0.4546)	
$\Delta privpc_{t-1}$	-6.401e-05	---	0.0014	0.0013
	(-0.0688)		(0.8836)	(1.357)
$\Delta privpc_{t-2}$	na	na	**0.0049**	**0.0047**
			(3.070)***	(4.197)***
Δhk_t	0.0014	**0.0017**	−0.0376	---
	(1.394)	(1.785)*	(−0.6739)	
Δhk_{t-1}	**-0.0019**	**-0.0019**	0.0308	---
	(-1.767)*	(-2.009)*	(0.5180)	
Δhk_{t-2}	na	na	**−0.0907**	**−0.0923**
			(−1.957)*	(−3.019)***
$\Delta trat_t$	**-0.0857**	**-0.0915**	−0.0035	---
	(-1.903)*	(-2.172)**	(−0.1135)	
$\Delta trat_{t-1}$	0.0568	**0.0828**	−0.0153	---
	(1.174)	(2.110)**	(−0.4911)	
$\Delta trat_{t-2}$	na	na	−0.0151	−0.0135
			(−0.4734)	(−0.6592)
$\Delta xdebtrat_t$	-0.0105	---	−0.0078	---
	(-0.4367)		(−0.4634)	
$\Delta xdebtrat_{t-1}$	0.01890	0.0249	0.0166	---
	(0.8392)	(1.268)	(0.9240)	
$\Delta xdebtrat_{t-2}$	na	na	−0.0288	**−0.0223**
			(−1.497)	(−1.746)*
$\Delta gdppc_{t-1}$	**0.4496**	**0.4736**	**0.3443**	**0.3569**
	(3.467)***	(4.008)***	(2.157)**	(3.037)***
EC_{t-1}	**−0.1372**	**-0.1397**	−0.1348	**−0.17996**
	(−1.963)*	(-2.402)**	(−1.503)	(−3.029)***
observations	42	42	42	42
R^2	0.649975	0.623759	0.842474	0.81867
Adjusted R^2	0.468481	0.502390	0.692449	0.759511
Autocorrelation LM test	2.26644	0.66363	0.256832	0.030442
Collinearity test	No problem	No problem	No problem	No Problem

Notes:

Estimated using GRETL. t-ratios are in brackets. (***) indicates significance at 1%, (**) indicates significance at 5%, while (*) indicates significance at 10%.

Economic growth, in a given year, seems to respond positively to changes in domestic investment. The effect of domestic investment on short-run economic growth in China is relatively stronger than that in Egypt. A 1% increase in the growth of domestic investment per capita would lead to 0.05% increase in economic growth in the same year, ceteris paribus, in Egypt. In China, on the other hand, both current and lagged domestic investment per capita significantly affects short-run economic growth. According to the results, a 1% increase in current domestic investment per capita will lead to a 0.41% increase in short-run economic growth, ceteris paribus. The estimated coefficient of the lagged domestic investment, however, is negative and statistically significant. A 1% increase in domestic investment per capita in a given year will lead to a 0.17% decrease in economic growth in the following year. One may argue that the net effect of growth in capital stock on economic growth will be positive as the size of the short-run coefficient of Δkpc_t is larger than that of the lagged variable. Hence, growth in domestic investment will have positive significant effects on short-run economic growth in China. In the long-run, domestic investment has positive effects on economic growth in both Egypt and China (Table 3). A 1% increase in the level of domestic investment per capita will lead to a 0.26% and 0.89% increase in the level of GDPpc in Egypt and China; respectively. The positive effects of domestic investment on economic growth is consistent with the evidence reported in previous empirical studies (e.g. Nunnenkamp and Spatz, 2003; Zhang, 2001; Vamvakidis, 2002).

The ECM model also indicates that growth in FDI net inflows per capita has positive significant effects on short-run economic growth in China, though not in Egypt. A 1% increase in the growth of FDI per capita will result in a 0.04% increase in economic growth in the same year. Our results are consistent with evidence from other empirical studies in terms of the sign of the estimated coefficient. However, our results report a smaller effect of FDI on short-run economic growth than other empirical studies. Zhang (2001) found that the effect of the growth in FDI stock on current economic growth in China was around 0.2 for the period 1989-93.

While FDI seems to have no significant effect on the Egyptian economic growth in the short-run, table 3 indicates that it has a significant positive effect on economic growth in the long run. A 1% increase in the level of FDI per capita will lead to a 0.04% increase in the level of GDPpc. This is consistent with the neo-classical growth theory stipulation that an increase in physical capital- whether domestic or foreign- will lead to short-run economic growth. FDI can have negative effects on economic growth if the remittances of FDI profits exceed the value of new FDI inflows and hence create negative effects on the balance of payments and/or if FDI is crowding out domestic investment (Nunnenkamp and Spatz, 2003). On the other hand, if FDI is complementing domestic investment, then FDI will have positive effects on economic growth (Ramirez, 2006). Moreover, the effects of FDI on economic growth will depend on the sector in which it takes place. FDI in the primary sector tends to have negative effects on economic growth, while FDI in the manufacturing sector tends to have positive effects (Alfaro, 2003).

The effects of privatisation on economic growth differ between Egypt and China. While the results indicate that privatisation will have positive effects on long-run economic growth in Egypt (Table 3), the estimated effect on short-run economic growth is insignificant (Table 4). In the long run, a 1% increase in privatisation proceeds per capita will result in a 0.006% increase in the level of GDPpc in Egypt. In China, on the other hand, privatisation seems to have no significant effects on long-run economic growth (Table 3). However, in the short run, a 1% increase in the growth of privatisation proceeds per capita will lead to a 0.005% increase in economic growth in two years' time. A study carried out on provincial levels in China (Zhao, 2013) covering 31 provinces during 1978-2008 found out significant positive effects of privatisation on economic growth. Plane (1997) also found that privatisation had significant positive effects on economic growth in a panel of developing countries.

The limited effects of privatisation on economic growth in China, on the other hand, can be explained by the lack of complete data about all privatisation transactions as highlighted by Gan (2008). The limited effects of privatisation on economic growth in both Egypt and China could also relate to the methods of privatisation mostly used in Egypt and China. As indicated earlier, both countries rely more on stock markets when privatising their SOEs (Tables A1 – A3). Bennett et al. (2007) carried out a study investigating the effects of different privatisation methods on economic growth in 23 transition economies during 1990-2003 and found out that the most influential method in speeding up economic growth in these countries is voucher privatisation; a method that is popularly used in Eastern European countries, but not in countries such as Egypt and China. Similarly, Gouret (2007) found out that positive effects on the level of output (rather than on the growth) will depend on the method of privatisation used in transition economies. Other factors that

may explain the limited effects of privatisation (and foreign investment as well) is the lack of well-developed capital markets (Lucas, 1990; Borensztein et al., 1998; and Plane 1997); a case that applies more on the Egyptian case than on the Chinese case. The effects of privatisation on economic growth in developing countries will also depend on the availability of certain competition and regulatory policies. Cook and Uchida (2003) carried out a study on 63 developing countries; covering the period of 1988-1997. They found no positive effects of privatisation on economic growth and that effective competition and regulations are needed to accompany privatisation in order to obtain positive impacts on economic growth. Similarly, Filipovic (2005); using a cross-country regression model on developing countries during 1990-1999, found that the effect of privatisation depends on other policy variables that are included in the model.

The results of the error correction models also indicate that growth in human capital may have very small significant effects on short-run economic growth in Egypt. A 1% point increase in the growth rate of human capital will lead to 0.002% point increase in economic growth in the same year, and a decrease by 0.002% point in economic growth in the following year, ceteris paribus. The estimated coefficients are significant at 10% significance level. One may argue, hence, that growth in human capital may not have an effect on short-run economic growth in Egypt.[26] In the long run, however, human capital has a significant, and relatively larger, effect on Egypt's GDP per capita. A 1% point increase in human capital growth will lead to a 0.01% point increase in GDP per capita (Table 3). In China, on the other hand, human capital seems to have no significant effects on China's GDPpc in the long run (Table 3), while it seems to have a negative and significant lagged effect on economic growth in the short-run. According to the results reported in table 4, a 1% increase in human capital growth will lead to a decrease of 0.09% in economic growth in two years' time. The estimated coefficient is statistically significant at 1% significance level.

Empirical studies have reported similar conflicting effects of human capital on economic growth in developing countries. While some empirical studies (e.g. Edwards, 1998; Dollar and Kraay, 2002; Li and Liu 2005) reported significant positive effects of human capital on economic growth, others (e.g. Nunnenkamp and Spatz, 2003; Zhang, 2001; Benhabib and Spiegel, 2000; Islam, 1995) found insignificant positive, and sometimes negative, effects of human capital on economic growth. Such inconsistency in reported results can be attributed to the quality of proxies used. Islam (1995) argues that, statistically speaking, the sign of *hk* depends on the quality of, and the method of constructing, data used. The indicator used to proxy human capital (simply because it offered the most available data for our sample) is the secondary school enrolment ratio. Enrolment in secondary school may not be the best proxy to capture the "quality" of schooling, and hence, the quality or skill level of the human capital in a given country. Hence, this can explain the some of the unexpected results for this indicator.

Economic growth is also affected by the degree of openness of the economy (Edwards, 1990). Openness can be measured using various proxies as indicated earlier. In this study, we use the ratio of total trade (including exports and imports in goods and services) to GDP as a measure of openness. According to the results reported in both Tables 3 and 4, Trade ratio seems to have no significant effects on long-run economic growth in neither Egypt nor China. In the short-run, on the other hand, while trade ratio still has no significant effects on economic growth in China, it seems to be having significant effects economic growth in Egypt. According to the results, a 1% increase in the growth of the trade ratio will lead to a 0.09% decrease in current economic growth, but a 0.08% increase in the following year's economic growth. While total trade reflects the overall openness of an economy, in countries that exhibit very large trade deficits, the effects may be negative on its growth rate. Perhaps a more suitable proxy would be exports ratio to GDP, to measure a country's adoption of export-promotion policies, which can be a positive factor to attract new export-led investment (whether domestic or foreign) and achieve higher economic growth rates (Ramirez, 2006; Nair-Reichert and Weinhold, 2001)

Another determinant of economic growth is the ratio of external debt stock to GDP. The estimated results reported in tables 3 and 4 indicate that external debt seems to have no significant effect on long-run economic growth in China. However, in Egypt, a 1% increase in the external debt stock ratio will lead to a 0.18% decrase in GDPpc in the long-run. External debt can have either positive or negative effects on economic growth. If external debt is at reasonable levels and if it is used in financing new investments, then it is expected to have positive effects on economic growth (Pattillo et al., 2002). On the other hand, external debt may also have negative effects on economic growth if it is accumulated by a higher rate than the rate of investment (Lin and Sosin, 2001; Pattillo et al., 2002). Egypt had high external debt ratios (i.e. 115% in 1989)[27]. Moreover, in Egypt, the average external debt ratio (for the period of 1970-2014) is 54.87%, which

is higher than the average domestic investment ratio 22.13%.[28] Such high levels of foreign debt generated a foreign-debt crisis in Egypt, which required some intervention in the form of economic reform policies to reduce the debt levels. Hence, the estimated negative effect is what might be expected in the case of Egypt. In the short run, the situation is reversed. The growth in the external debt stock ratio seems to have no significant effects on the Egyptian economic growth in the short-run. However, in China, a 1% increase in the growth of external debt stock ratio will lead to a 0.02% decrease in economic growth in two years' time. However, the estimated coefficient is smaller in size and is significant at only 10% significance level.

Past economic growth ratios have positive and highly significant effects on short-run economic growth in both Egypt and China. A 1% increase in economic growth rate in one year will lead to a 0.47% and 0.36% increase in economic growth in the following year in Egypt and China; respectively.

The coefficient of the lagged error correction term (EC_{t-1}) is negative and statistically significant. This negative coefficient indicates the speed of adjustment required to return to the long-run relationship. The values of the estimated coefficients, however, indicate that the adjustment speed is relatively slower in the cases of Egypt and China than in other developing countries. The deviation between current growth and the long-run relationship will be corrected by 14% and 18% in the following year in Egypt and China; respectively. Other empirical studies have estimated a faster adjustment speed. In Argentina, for example, an ECM model covering period 1971-2000 shows that the deviation between the short- and long-run relationships will be corrected by 34.8% in the following year (Naguib, 2012).

Overall, the results of the estimated error correction model in Table 4 quantify the determinants of economic growth in Egypt and China during 1970-2014. The R^2 in both models indicates that the estimated error correction model explains 62.4% and 81.9% of the changes in economic growth in Egypt and China; respectively. Diagnostic tests indicate no problems of autocorrelation or multicollinearity.

V. CONCLUSION

In order to measure the effects of FDI and privatisation on economic growth in Egypt and China during 1970-2014, time-series error correction models were constructed using the general-to-specific approach. The advantage of error correction models is that they combine both the short-run and long-run effects on economic growth.

Both FDI and Privatisation were found to have positive and significant; though relatively small, effects on long-run (but not short-run) economic growth in Egypt. In China, on the other hand, while there was no statistical significant evidence that either FDI or Privatisation have an effect on long-run economic growth, the evidence suggests that they do positively affect economic growth in the short run. Growth in FDI per capita will have positive effects on current economic growth, while the growth in privatisation proceeds per capita will have a 2-years lag effect on economic growth. The limitation in the size of privatisation effects, however, may be attributed to the lack of complete data on all privatisation transactions that have values less than $500,000 (as these were not recorded by the IFC), or the fact that data on many direct sale transactions (particularly in China) are difficult to obtain.

The sign of the FDI coefficient also indicates whether FDI complements or substitutes domestic capital (De Mello, 1999; and Borensztein et al., 1998). Positive coefficients of FDI indicate that FDI complements domestic capital. In that sense, the evidence suggests that FDI and domestic investment are complements in the short-run in China, and in the long-run in Egypt.

The evidence also suggests that the positive impact of FDI on long-run economic growth during 1970-2014 is rather small in Egypt, as the value of the estimated coefficients are not larger than 0.10. This may be related to the type of trade policy applied. Empirical research (e.g. Balasubramanyam et al., 1996 and 1999; Ramirez, 2006) shows that the effects of FDI are larger in countries that apply export-promotion rather than import-substitution policies. For most of the time period covered, import-substitution policies were applied until the late 1980s in Egypt. Thus, in Egypt, the majority of FDI projects (except those in the primary sector) are resource- and market-seeking projects (UNCTAD, 1999a).

The models investigate the effects of other determinants on economic growth in both countries, such as human capital, openness, external debt, domestic investment and past rates of economic growth. The one determinant that has been consistently statistically significant in all models for both countries is domestic investment. Both short- and long-run models have shown a positive significant effect of domestic investment on economic growth in both countries. As shown in figures 1 and 2, during the privatisation era of 1990 –

2008, domestic investment ratio has been increasing in both countries. This proves that privatisation, in its broader definition of the reduction of the public-sector activities and encouraging more private sector activities, had positive spillovers on the size of domestic investments in these two countries, which led to increase in their economic growth.

The explanatory power of the ECM models may be further improved by using different proxies for our variables. For example, finding other measures for privatisation than sale proceeds to account for the wider meaning of privatisation may capture the effect of privatisation on economic growth more accurately. Similarly, the use of export ratio to GDP may reflect a more accurate measure for the openness of an economy. Furthermore, a different method in accounting for missing values, other than assuming them to equal to zero, may improve the results. Our further research will aim to address these shortcomings as well as extending the model to include non-economic determinants of economic growth (e.g. political instability, corruption, etc.); especially for the case of Egypt to capture the effects of the Arab Spring that may have negatively affected its economic growth in the subsequent years.

APPENDIX

Variable definitions:

All Data are collected from the World Development Indicators, World Bank (2016); except for the data of privatisation, which is collected from the IFC. All monetary variables are in constant 2005 US$.

- $\Delta gdppc_t$ = growth in GDP per capita
- Δkpc_t = growth in domestic investment per capita. The sign of its coefficient is expected to be positive as an increase in domestic investment or domestic capital leads to an increase in economic growth. The indicator used is Gross Capital Formation (formerly known as Gross Domestic Investment.
- $\Delta fdipc_t$ = growth rate in FDI net inflows per capita. FDI may have positive or negative effects on economic growth depending on the nature of its spillovers. If FDI complement domestic investment, participate in augmenting human capital, and facilitates the transfer of appropriate technology, then it is expected to have positive effects. However, if FDI leads to substantial transfers of profits from the host country, transfer of inappropriate capital, or crowding out domestic investment, then it can have negative effects on economic growth (Ramirez, 2006). In addition, the effects of FDI on economic growth depend on the sector in which it takes place. FDI in manufacturing tend to have positive effects on growth while FDI in the primary sector tends to have negative effects.[29] Hence, the sign of the coefficient may be either positive or negative.
- Δhk_t = growth rate in human capital. The proxy used to measure human capital is the Gross Secondary school enrolment ratio. The coefficient is expected to be positive.
- $\Delta trat_t$ = growth in total trade as a ratio of GDP. It measures the openness of an economy. The more open an economy, the faster is its economic growth. Hence, the expected sign of the coefficient is positive.
- $\Delta privpc_t$ = growth in privatisation proceeds per capita as a measure of the size of the privatisation program applied in the country. Large privatisation programmes reflect the shrinkage of the size of the public sector, and therefore, its coefficient is expected to be positive.
- $\Delta xdebtrat_t$ = growth in external foreign debt stock as a percentage of GDP. In neoclassical models, external debt is expected to have positive effect on economic growth if it is in reasonable levels and if it is used to finance investment (Pattillo et al., 2002). On the other hand, external debt may also have negative effects on economic growth if it is accumulated by a higher rate than the rate of investment (Lin and Sosin, 2001; Pattillo et al., 2002). Hence, the sign of the external debt coefficient can be either positive or negative.

Table A1: EGYPT - Privatisation transactions by technique between 1993 and 2008

Privatisation Method	Proceeds (US$ millions)	No. of transactions
Stake Purchase (more than 50%)	361.90	2
Anchor Investor	190.38	2
Asset Sale/ Liquidation	174.61	5
Concession (Build, rehabiltate, Operate and Transfer)	125.00	1
Direct Sale	237.26	4
Divestiture (either full or partial)	2433.03	17
Employee Share Association	93.25	12
GDR (secondary issue)	120.00	1
Greenfield	2900.00	1
IPO	104.70	1
IPO & Private Placement	892.00	1
Joint Venture	2924.98	12
Joint Venture/ Public Offering	156.38	2
Law 203	15.36	2
Law 203 Asset	83.98	1
Law 203 company	144.93	2
Law 203 minority stake	32.00	4
Local Investor	23.95	2
Majority sold on stock market	77.63	3
Minority sold on stock market	65.87	2
Private Sale	107.60	4
Public Offer	2378.39	59
Public Offer & Private Placement	155.88	1
Public Offer/ GDRs	105.80	1
Stake in Joint Venture	379.47	13
Stock Exchange Sale	116.60	1
Stock Market	10.34	2
Trade Sale	755.90	5
Various Methods	100.63	1
Unknown/ Unspecified	374.69	10
Total	**15642.49**	**174**

Source: Calculated from the IFC Privatisation Database (1990 – 2008)

Table A2: EGYPT - Privatisation transactions by technique between 1993 and 2000/2001

Privatisation Technique	No. of Companies/ production units privatised	Sale Value in L.E. million
Sale of majority or all shares through the stock market	38	5,651
Sale of majority interest to an anchor investor	26	6,702
Sale to Employee Shareholder Associations	30	870
Sale of minority interests in companies	16	1,755
Sale of production assets	18	839
Sub-total	***128***	***15,817***
Complete Sale of assets	32	
Lease of production units	20	
Total	**180**	

Source: PCSU (2001), p. 9.

Table A3: CHINA - Privatisation transactions by technique between 1991 and 2008

Privatisation Method	Proceeds (US$ millions	No. of transactions/ companies
"A" Shares Offerings	11.00	1
"B" Shares Offerings	2459.85	50
"B" Shares and ADRs	45.00	1
"B" Shares and GDRs	239.00	1
"H" share offering	6970.70	54
"H" Shares (secondary Offering)	134.16	1
"H" Shares (secondary placement)	30.78	1
ADRs and H shares	831.29	2
ADR on NYSE	625.00	1
ADRs	4075.09	2
Initial Public Offering (IPO)	81912.07	35
Public Offer	52500.57	33
NYSE Offering	80.00	1
"S" Shares	67.00	1
Concession	3297.06	67
Direct Sale	9442.90	8
Divestiture (Full and Partial)	17502.78	43
Greenfield	92.66	4
Joint Venture	30.00	1
Lease	237.60	3
Management and Lease Contract	9.53	2
Private Sale	1826.90	4
Unknown/ Unspecified	2152.30	9
Total	**184573.24**	**325**

Source: Calculated from the IFC Privatisation Database (1990 – 2008)

ENDNOTES

[1] Ayubi (1995), p. 10.

[2] Most developing countries suffer from chronic macroeconomic problems such as high external debts, deficits in their balance of payments, deficits in their public budgets, and shortage of domestic capital. Between 1960 and 1970, external debt of developing countries, for example, increased from $19 billion to more than $60 billion, and to $151.3 billion by the end of 1974 (Zaki, 1978).

[3] Information and Decision Support Centre (IDSC). www.idsc.gov.eg/Indicators [Accessed on 14/07/2006]

[4] Tesche and Tohamy (1994).

[5]See Lin et al. (1998) for a detailed discussion on major problems faced by SOEs.

[6] See Sun and Tong (2003) for further details on the history of China's SOEs reform.

[7] Graca et. al (1994), p. 3. And a similar argument is presented in Grossman and Helpman (1994), p. 26.

[8] Sader (1993 and 1995) found that privatisation in developing countries attract more FDI inflows to these countries.

[9] De Mello (1997), pp. 10 -14.

[10] Given a production function of $y = Ak_d^{\beta} H^{1-\beta}$ where the function is in per capita terms, k_d is domestic capital, and β is the share of domestic physical capital. H is overall stock of knowledge in the host country and is represented by: $H = [k_d k_w^{\alpha}]^{\eta}$ where k_w is foreign-owned capital, and α and η are marginal and intertemporal elasticities of substitution between foreign and domestic capital; respectively. The intertemporal Optimisation Framework combines the supply and demand sides of the economy, by

$$\max \int_{t=0}^{\infty} u(c) e^{-\rho t} dt$$

maximising private consumption as follows: $\begin{array}{l} \text{s.t. } \dot{k}_d = Ak_d^{\beta + \eta(1-\beta)} k_w^{\alpha\eta(1-\beta)} - c, \\ k_d(0) \geq 0 \end{array}$

where ρ is the rate of time preference of the utility maximiser, and c is private consumption. (See De Mello, 1997, pp. 12-13 for more details).

[11] See the appendix for the definitions of variables and the expected sign of their coefficients.

[12] Maddala (2001), p. 255, and Harris and Sollis (2003), p. 27.

[13] In order to obtain meaningful causal relationships, time-series models assume that the variables included are stationary (i.e. their means, variance and covariance are constant and are independent of time). [Harris and Sollis, 2003, pp. 26-27]

[14] Having both the constant and time trend (i.e. deterministic trends) in the unit root test "increases … the critical values, making it harder to reject the null hypothesis, even when it should be rejected". (Harris and Sollis, 2003, p. 46)

[15] Harris and Sollis (2003), p. 47.

[16] For more details, see Harris and Sollis (2003), pp. 41 – 57.

[17] In determining the maximum number of lags, we followed Schwert's (1989) formula, where $l = int\{12(\frac{T}{100})^{0.25}\}$, where T= sample size, and l = number of lags. In our models T = 45.

[18] Only in the Egyptian model, we will be using HK rather than log of HK. The ADF tests showed that LHK is stationary in levels and first difference, while HK (i.e. without taking logs) was found to be non-stationary in levels, but stationary in first difference. When we have a combination of I(0) and I(1) variables in levels, the appropriate method of estimation should be ARDL (Giles, 2013). However, in the Chinese model all variables are I(1) in levels, which indicates that the appropriate estimation method should be Error Correction Models. It was, therefore, decided that we use HK in the Egyptian model to unify the method of estimation with that of the Chinese model.

[19] In the case of the DLPop variable, the plot of the variable indicates that it does not follow a trend. Hence, we choose to accept the results of τ_Y (i.e. the ADF test with Intercept only).

[20] E-views offers different possible specifications for the potential break. The above results are for when the break specification is "intercept only". When the specification of the break was changed to "trend only", the

results became -3.566530 (1) – break in 2014, with p-value of 0.3691, which indicates that the null hypothesis cannot be rejected, and hence LGDP is non-stationary.

[21] The above test statistic is according to the modified SB criterion. The results according to the normal SB criterion seem to indicate the rejection of the H0, as it was reported as -5.071342. However, given the results according to the modified SB for the τ_{γ} test, and that the plot of the data indicates a trend in the series, it is fair to conclude that Lpop is I(1) in the levels and that the more relevant results are that of the τ_{δ} test.

[22] Pesaran and Pesaran (1997).

[23] See Hendry (2000) for more details on the 'General-to-Specific' approach.

[24] The general specification for the Chinese ECM was run with 2 lags, while for Egypt, it was found that the general specification is best with 1 lag for each explanatory variables.

[25] Due to space limitations, the Eviews results of the collinearity tests for all the reported models are not included here. However, they are available upon request.

[26] A Wald test on whether the coefficients of Δhk_t *and* Δhk_{t-1} *could not reject the null hypothesis of coefficients = 0 at the 5% significance level, but it rejects it at the 10% significance level.*

[27] Calculated from WDI (2016)

[28] In China, on the other hand, the average domestic investment ratio, for the same time period, is 38.57% which is more than the external debt ratio average of 11.47%. Hence, confirming the conclusion of Lin and Sosin (2001) and Pattillo et al. (2002).

[29] For more details see Alfaro (2003).

REFERENCES

Al-Mashat, R. and Grigorian, D. (1998), "Economic Reforms in Egypt: Emerging Patterns and Their Possible Implications", *Policy Research Working Paper no. 1977*, World Bank.

Alexander, M. and Corti, C. (1993), "Argentina's Privatization Program", *CFS Discussion Paper Series no. 103*, Cofinancing and Financial Advisory Services (CFS), World Bank, Washington, D.C.

Alfaro, L. (2003), "Foreign Direct Investment and Growth: Does the sector Matter?", *World Bank Working Paper # 3708*, pp.1-31. http://rru.worldbank.org/PapersLinks/open.aspx?id=3708]

Ayubi, N. (1995), "Estatisme versus Privatization: The Changing Role of the State in 9 Arab Countries", *ERF Working Paper no. 9511*, Economic Research Forum, Cairo, Egypt.

Bai, C.; Lu, J. and Tao, Z. (2009), "How does privatization work in China", *Journal of Comparative Economics*, Vol. 37, pp. 453-470.

Balasubramanyam, V.; Salisu, M. and Sapsford, D. (1996), "Foreign Direct Investment and Growth in EP and IS Countries", *Economic Journal*, Vol. 106, no. 434, pp. 92-105.

---------- (1999), "Foreign Direct Investment as an Engine of Growth", *The Journal of International Trade and Economic Development*, Vol. 8, No.1, pp. 27-40.

Barro, R. J. (1991), "Economic Growth in a Cross Section of Countries", *The Quarterly Journal of Economics*, Vol. 106, no. 2, pp. 407-443.

---------- (2000), "Inequality and Growth in a Panel of Countries", *Journal of Economic Growth*, Vol. 5, no. 2, pp. 5-32.

Beirne, J.; Liu, G. and Sun, P. (2013), "The Performance Impact of Firm Ownership Transformation in China", *Working Paper No. 1598*, European Central Bank.

Benhabib, J. and Spiegel, M. (2000), "The Role of Financial Development in Growth and Investment", *Journal of Economic Growth*, Vol. 5, no. 4, pp. 341-360.

Bennett, J.; Estrin, S. and Urga, G. (2007), "Methods of Privatization and Economic Growth in Transition Economies", *Economics of Transition*, Vol.15, No. 4, pp. 661-683.

BETF (2000), "Egypt: Boosting the Pace of Privatization and Making the Program a More Effective Tool for Private Sector Development", *Joint Report of the GOE and the World Bank*, World Bank.

Bhaskar, V. and Khan, M. (1995), "Privatisation and Employment: A Study of the Jute Industry in Bangladesh" in *Privatisation in Developing Countries Vol. II*, Cook, P. and Kirkpatrick, C. (2000) [eds.], Edward Elgar Publishing Ltd., Cheltenham, pp. 343-49.

Borensztein, E.; De Gregorio, J. and Lee, J.W. (1998), "How does Foreign Direct Investment affect Economic Growth?", *Journal of International Economics*, Vol. 45, No. 1, pp. 115-35.

Brindle, S. (1993), "Privatisation: Progress and Problems", *Business Monthly,* Vol. 9, No. 6, pp. 8-11.
Clarke, G. R. G. and Cull, R. (1998a), "Why Privatize? The Case of Argentina's Public Provincial Banks", Policy Research Working Paper no. 1972, The World Bank, Washington, D.C.
---------- (1998b), "The Political Economy of Privatization: An Empirical Analysis of Bank Privatization in Argentina", Policy Research Working Paper no. 1962, The World Bank, Washington, D.C.
---------- (1999), "Provincial Bank Privatization in Argentina: The Why, How, and 'So what?'", *Policy Research Working Paper no. 2159*, The World Bank, Washington, D.C.
Cook, P. and Kirkpatrick, C. (1998), "Privatisation, Employment and Social Protection in Developing Countries" in *Privatisation in Developing Countries Vol. II*, Cook, P. and Kirkpatrick, C. (2000) [eds.], Edward Elgar Publishing Ltd., Cheltenham, pp. 368-81.
Cook, P. and Uchida, Y. (2003), "Privatisation and Economic Growth in Developing Countries", *The Journal of Development Studies,* Vol 39, No. 6, pp. 121-154.
De Mello, L. (1997), "Foreign Direct Investment in Developing Countries and Economic Growth: A selective survey", *The Journal of Development Studies,* Vol. 34, No.1, pp. 1-34.
---------- (1999), "Foreign Direct Investment-led Growth: Evidence from time series and panel data", *Oxford Economic Papers,* Vol. 51, pp. 133-151.
Dobronogov, A. and Iqbal, F. (2005), "Economic Growth in Egypt: Constraints and Determinants", *Middle East and North Africa Working Paper Series no. 42,* World Bank.
Dollar, D. and Kraay, A. (2002), "Growth is Good for the Poor", *Journal of Economic Growth,* Vol. 7, no. 3, pp. 195-225.
Dong, X.; Putterman, L. and Unel, B. (2006), "Privatization and firm performance: A comparison between rural and urban enterprises in China", *Journal of Comparative Economics,* Vol. 24, pp. 608-633.
Driffield, N. and Du, J. (2007), "Privatisation, State Ownership and Productivity: Evidence from China", *International Journal of the Economics of Business,* Vol. 14, No. 2, pp. 215-239.
Edwards, S. (1990), "Capital Flows, Foreign Direct Investment and Debt-Equity Swaps in Developing Countries", *NBER Working Paper # 3497*, National Bureau of Economic Research, USA.
Elshee, M. and Pagen, J. (1999), "Foreign Direct Investment and Economic Growth in East Asia and Latin America", *Journal of Emerging Markets,* Vol. 4, no. 1, pp. 59-67.
Estrin, S.; Hanousek, J.; Kočenda, E. and Svejnar, J. (2009), "The Effects of Privatization and Ownership in Transition Economies", *Journal of Economic Literature,* Vol. 47, No. 3, pp. 699-728.
Filipovic, A. (2005), "Impact of Privatization on Economic Growth", *Undergraduate Economic Review,* Vol. 2, No. 1, Article 7.
Gan, J. (2009), "Privatization in China: Experiences and Lessons", in *China's Emerging Financial Markets,* Barth, J.; Tatom, J. and Yago, G. (eds.), The Milken Institute Series on Financial Innovation and Economic Growth 8. USA: Springer, pp. 581-592.
Gerchunoff, P. and Coloma, G. (1993), "Privatization in Argentina" in *Privatization in Latin America,* Sánchez, M. and Corona, R. (eds.), the Inter-American Development Bank, Washington, D.C., pp. 251 – 299.
Giles, D. (2013), *ARDL Models – Part II – Bounds Tests* (Online) [http:// http://davegiles.blogspot.co.uk/2013/06/ardl-models-part-ii-bounds-tests.html] Accessed on: 25th April 2016.
Gouret, F. (2007), "Privatization and Output Behaviour during the Transition: Methods Matter!", *Journal of Comparative Economics,* Vol. 35, pp. 3-34.
Graca, J., Jafarey, S. and Philippopoulos, A. (1994), "Interaction of Human and Physical Capital in a model of Endogenous Growth", *Discussion Paper no.429,* University of Essex.
Grossman, G. and Helpman, E. (1994), "Endogenous Innovation in the Theory of Growth", *Journal of Economic Perspectives,* Vol. 8, No. 1, pp. 23 -44.
Gylfason, Th.; Herbersson, T. and Zoege, G. (1998), "Ownership and Growth", *Discussion Papers in Economic no. 2-98,* Birbeck College, University of London.
Harris, R. and Sollis, R. (2003), *Applied Time Series Modelling and Forecasting,* John Wiley and Sons Ltd., UK.
Hendry, F. (2000), *Econometrics: Alchemy or Science?*, Oxford University Press, UK.
IFC - International Finance Corporation (2015), *Privatisation Database 1991-2008*, World Bank Group.

Islam, N. (1995), "Growth Empirics: A Panel Data Approach", *Quarterly Journal of Economics,* Vol. 110, no. 4, pp. 1127 -1170.

Kikeri, S. (1998), "Privatisation and Labor: What Happens to Workers When Governments Divest?" in *Privatisation in Developing Countries Vol. II*, Cook, P. and Kirkpatrick, C. (2000) [eds.], Edward Elgar Publishing Ltd., Cheltenham, pp. 382-427.

Kinniburgh, J. and Ribeiro, V. (1986). "Data on FDI: Review of the Current Situation", *The CTC Reporter*, No. 22, Pt. 1 (Autumn), pp. 16-19.

Li, X. and Liu, X. (2005), "Foreign Direct Investment and Economic Growth: An increasingly endogenous relationship", *World Development,* Vol. 33, No. 3, pp. 393 – 407.

Lin, J.Y; Cai, F. and Li, Z. (1998), "China's Economic Reforms: Some Unfinished Business. Competition, Policy Burdens, and State-Owned Enterprise Reform", *The American Economic Review*, Vol. 88, No. 2, Papers and Proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association, pp. 422-427.

Lin, S. and Sosin, K. (2001), "Foreign Debt and economic growth", *Economics of Transition*, Vol. 9, no. 3, pp. 635-655.

Lucas, R. (1988), "On the Mechanics of Economic Development", *Journal of Monetary Economics*, Vol. 22, pp. 3-42.

---------- (1990), "Why Doesn't Capital Flow from Rich to Poor Countries", *American Economic Review,* Vol. 80, No. 2, pp. 92-96.

MacKinnon, J. G.; A. A. Haug, and L. Michelis (1999), "Numerical distribution functions of likelihood ratio tests for cointegration," *Journal of Applied Econometrics*, Vol.14, pp. 563–577

Maddala, G.S. (2001), *Introduction to Econometrics*, 3rd edition, John Wiley and Sons Ltd., West Sussex, UK.

Mankiw, N.G.; Romer, D. and Weil, D. (1992), "A contribution to the empirics of economic growth", *The Quarterly Journal of Economics,* no.2, pp. 407-437.

McKenzie, M. (2008), "Privatization and Economic Growth in Australia: The shorthand of a long process", *Applied Economics,* Vol. 40, pp. 1953-1967.

Naguib, R. (2011), "Foreign Direct Investment, Privatisation and Economic Growth in the Developing Countries: The Cases of Egypt and Argentina", *PhD Thesis,* University of the West of England, Bristol.

Naguib, R. (2012), "The Effects of Privatisation and Foreign Direct Investment on Economic Growth in Argentina", *The Journal of International Trade & Economic Development*, Vol. 21, No. 1, pp. 51-82.

Nair-Reichert, U. and Weinhold, D. (2001), "Causality tests for cross-country panels: a new look at FDI and economic growth in developing countries", *Oxford Bulletin of Economics and Statistics*, Vol. 63, no. 2, pp. 153-171.

Nunnenkamp, P. and Spatz, J. (2003), "Foreign Direct Investment and Economic Growth in Developing Countries: How relevant are host-country and industry characteristics?", *Keil Working Paper no. 1176*, Keil Institute for World Economics, Germany.

Obeid, G. (2002), "The Impact of Foreign Direct Investment on Economic Growth: An Applied Study on the Egyptian Economy", *Ph.D. Thesis*, Helwan Universty, Egypt. [in Arabic]

Ott, A. (1991), "Privatization in Egypt: Reassessing the Role and Size of the Public Sector", in *Privatization and Economic Efficiency: A Comparative Analysis of Developed and Developing Countries*, Ott, A. and Hartley, K. (1991) [eds.], Edward Elgar Publishing Ltd., England, pp. 184-222.

Pattillo, C.; Poirson, H. and Ricci, L. (2002), "External Debt and Growth", *IMF Working Paper # 69*, IMF. USA.

PCSU (2001), *Privatization in Egypt Quarterly Review: July – September 2001*, CARANA Corporation, Cairo, Egypt.

Perron, P. (1989), "The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis", *Econometrica*, Vol. 57, No. 6, pp. 1361 -1401.

Pesaran, M.H. and Pesaran, B. (1997), *Microfit 4.0*, Oxford University Press, Oxford.

Plane, P. (1997), "Privatisation and Economic Growth: an empirical investigation from a sample of developing market economies", in *Privatisation in Developing Countries Vol. II*, Cook, P. and Kirkpatrick, C. (2000) [eds.], Edward Elgar Publishing Ltd., Cheltenham, pp. 350-67.

Ramirez, M. (2006), "Is Foreign Direct Investment Beneficial for Mexico? An empirical Analysis, 1960 – 2001", *World Development*, Vol. 34, No. 5, pp. 802 – 817.

Romer, P. (1986), "Increasing Returns and Long-run Growth", *Journal of Political Economy*, Vol. 94, pp. 1002-37.

Sader, F. (1993), "Privatisation and Foreign Investment in the Developing World: 1988-1992", *Policy Research Working Paper # 1202*, World Bank, USA.

---------- (1995), "Privatizing Public Enterprises and Foreign Investment in Developing Countries, 1988-1993", *FIAS Occasional Paper 5*, Foreign Investment Advisory Service, World Bank, USA.

Schwert, G.W. (1989), "Tests for Unit Roots: A Monte Carlo Investigation", *Journal of Business and Economic Statistics*, Vol. 7, no. 2, pp. 147-159.

Solow, R. (1956), "A Contribution to the Theory of Economic Growth", *Quarterly Journal of Economics*, Vol. 70, pp. 65-94.

---------- (1957), "Technical Change and the Aggregate Production Function", *Review of Economics and Statistics*, Vol. 39, pp. 312-20.

Sun, Q. and Tong, W.H.S. (2003), "China share issue privatization: the extent of its success", *Journal of Financial Economics*, Vol. 70, No. 2, pp. 183-222.

Swan, T. (1956), "Economic Growth and Capital Accumulation" *the Economic Record*, Vol. 32, pp. 334-61.

Tesche, J. and Tohamy, S. (1994), "Economic Liberalization and Privatization in Hungary and Egypt", *ERF Working Paper no. 9410*, Economic Research Forum, Cairo, Egypt.

UNCTAD (1999a), *Investment Policy Review of Egypt*, United Nations.

UNCTAD (1999b), "Foreign Direct Investment in the Arab World: Country Profiles", *Regional Symposium on Investment in the Arab World, 16-18 June 1999, Rabat, Morocco*, United Nations.

Urbiztondo, S. (1998), "Direct Foreign Investment in Argentina: Evolution, New Challenges and Perspectives", *The Quarterly Review of Economics and Finance*, Vol. 38, No. 3, University of Illinois, pp. 459 – 482.

Vamvakidis, A. (2002), "How Robust is the Growth-Openness Connection? Historical Evidence", *Journal of Economic Growth*, Vol. 7, no. 1, pp. 57-80.

World Bank (1997), *Arab Republic of Egypt: Country Economic Memorandum (4 volumes)*, World Bank Resident Mission in Egypt.

World Bank (2016), *World Development Indicators* [Online]. World Bank group.

World Bank (various issues), *World Investment Report*, World Bank, Washington, USA.

Zaki, R. (1978), *External Debt Crisis: A Third World Vision*, Egyptian General Book Association, Cairo. [in Arabic]

Zhang, K. (2001), "How does foreign direct investment affect economic growth in China?", *Economics of Transition*, Vol. 9, no. 3, pp. 679-69.

Zhao, S. (2013), "Privatization, FDI Inflow and Economic Growth: Evidence from China's Provinces, 1978-2008", *Applied Economics*, Vol. 45, pp. 2127-2139.